period, mainly determined by the availability of favourable vegetation.

The number of embryos recorded from two females averaging around 7 largely go in conformity with Roberts (loc. cit.), suggestion that the species is a rather prolific breeder in the area.

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6. A NOTE ON 'EAR-SORE' IN SARISKA WILDLIFE SANCTUARY, RAJASTHAN

(*With a photograph*)

Ear-sore has been reported from nilgai in Gir, Gujarat by Hiregoudar (1974); and is frequently reported from cattle, domestic buffalo and elephant in many parts of India, (Hiregoudar and Chatupale 1965, Hiregoudar 1974). Casual observation of nilgai in Sariska Wildlife Sanctuary, Alwar, Rajasthan in 1984 (March, May, November) and again in 1985 (July and November), showed a high proportion of animals with such a condition. As previous notes did not comment on the prevalence of the infection in wild populations, the opportunity is now taken to do so.

Ear-sore was readily observable in the stationary animal, as black and red scabs and sores on the inner proximal part of the ear pinna. Three degrees of infection were distinguished:

a) Light infection: No apparent loss of ear tissue, the pinna margins still rounded and smooth. Minor scabs and darkening of skin, some exudate and thickening of pinnae.

b) Medium Infection: Outer edge of pinna is torn and ragged, considerable thickening of tissue, large scabs and sores, black and red exudate.

c) Severe infection: As above but with considerable loss of tissue, on occasion up of half the pinna had been destroyed.

Photograph shows a male nilgai with an obvious severe infection.

Table 1

Incidence of ear-sore amongst nilgai in Sariska W.L.S. 1984

Category	No. examined	No. infected	Early	Medium	Severe
Male adult	21	16	4	7	5
Female adult	26	18	6	9	3
Subadult	22	11	11	0	0
Total	69	45	21	16	8
Percentage		65%	30%	23%	12%

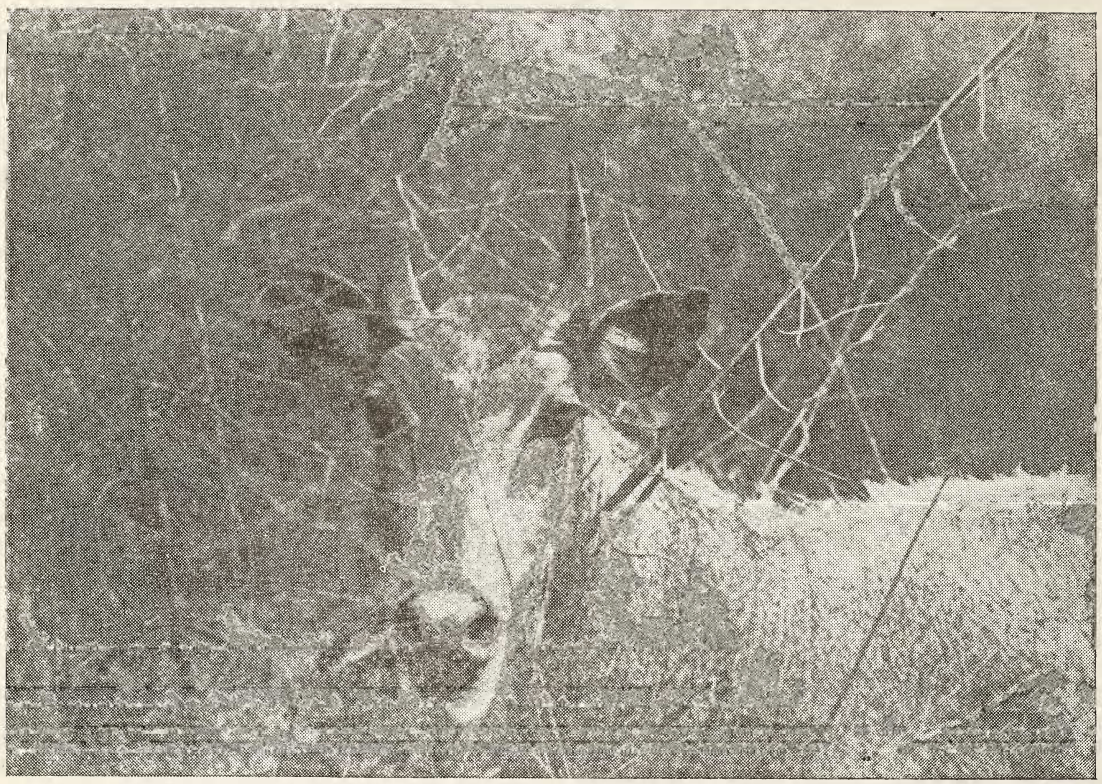

Photo 1. Male Nilgai with obvious severe infection.

Infection was noticed amongst adults and subadults of both sexes. No infection was seen in calves or yearlings. Table 1 illustrates the level of infection in the population in May and August 1984. No infection was seen in spotted deer or sambar in Sariska. Cattle populations in and around the sanctuary apparently do not suffer from this infection.

Ear-sore or Stephanofilarial dermatitis in nilgai is a result of infection by a filarial nematode *Stephanofilaria assamensis* Pande 1936, which causes the active lesions and tissue granulation (L. S. Hiregoudar, pers. comm. 1984). In no case did infected nilgai display overt signs of irritation. Birds were not seen to peck at sores, but flies were common on the sores. The vector of this filaria is not known but is probably a biting fly.

Adult female nilgai in Sariska are in noticeably poor condition (visible ribs and pelvic girdles) compared to males, or to female nilgai elsewhere, e.g. Ranthambore. No correlation between ear-sore and condition was noticed; prime condition adult males often had severe infections.

No sign of ear-sore was seen on nilgai in Ranthambore National Park in November 1985, nor in close examination of tranquilised animals from an enclosure in Bhatinda, Punjab (Franzmann, pers. comm. 1985). It has

been suggested that the Sariska infection may have originated from migrating cattle, which used to move from Gujarat through Sariska to the Jamuna Valley (Fateh Singh, pers. comm. 1985). Such movements are no longer permitted.

What should or could wildlife managers do about such infections? The answer is almost certainly 'nothing'. Treatment amongst cattle is difficult. Eradication from a wild ungulate population would be impossible without the unacceptable policy of culling infected animals. Animal condition and reproductive parameters do not seem to be affected. Managers should, however, monitor incidence of infection, and body condition amongst wild animals and domestic cattle given grazing rights in wildlife areas. If infection rates markedly increase and body condition and reproductive performance are seen to decrease as a result, then management action may become necessary.

There is no hard evidence to link this ear-sore infection, or the 1968 outbreak of haemorrhagic septicaemia in Sariska sambar to past migratory cattle. However such poor condition cattle populations almost certainly do act as reservoirs of pathogens, and their passage through major wildlife areas should be prevented.

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7. A SCANNING ELECTRON MICROSCOPE STUDY OF THE HAIR KERATINS OF SOME ANIMALS OF THE INDIAN SUBCONTINENT — A PRELIMINARY REPORT

(*With fifteen figures in eight plates*)

This study examines the surface structure and cross sections of the hair keratins of some animals with the Scanning Electron Microsope (SEM). The conventional technique of embedding hair in suitable media and studying their structure with the ordinary optical microscope often results in optical artifacts especially with unstained specimens. These can be avoided with the SEM. The hair keratins show significant differences particularly in cross section and we feel that the use of the SEM can provide valuable additional data.

INTRODUCTION

The determination of the structure of hair is of great interest since it affords a method of identification of the particular animal from which it has originated. It is one of the re-